NASAfacts

Small Spacecraft Technology Program (SSTP) – Projects 2014 - 2015

The Small Spacecraft Technology Program invests in the development and demonstration of a range of technologies and capabilities and engages the talents of a broad community of researchers and technologists from government, industry and academia. Currently, the SSTP funds and/or manages 34 projects that are organized under the four program elements.

FOCUSED TECHNOLOGY DEVELOPMENT

Small Spacecraft Propulsion

1U Cubesat Green Propulsion System with Post-Launch Pressurization
- Busek Co., INC., Natick, MA

Advanced Hybrid Rocket Motor Propulsion Unit for Cubesats
- The Aerospace Corporation, El Segundo, CA

Iodine RF Ion Thruster Development
- Busek Co., INC., Natick, MA

Inductively Coupled Electromagnetic Thruster System Development for Small Spacecraft Propulsion
- MSNW LLC, Redmond, WA

Operational Demonstration of the MPS-120 Cubesat High-impulse Adaptable Modular Propulsion System
- Aerojet Rocketdyne, Sacramento, CA

Small Earth Return Vehicles

Technology Development for the Maraia Earth Return Capsule
- NASA Johnson Space Center, Houston, TX and Kennedy Space Center, FL

FLIGHT DEMONSTRATIONS

Cubesat Proximity Operations Demonstration (CPOD)
- Tyvak Nano-Satellite Systems, LLC, Orange, CA

Edison Demonstration of Smallsat Networks Mission (EDSN)
- NASA Ames Research Center, Moffett Field, CA

Nodes - Network & Operation Demonstration Satellite
- NASA Ames Research Center, Moffett Field, CA

Integrated Solar Array and Reflectarray Antenna (ISARA)
- Jet Propulsion Laboratory, Pasadena, CA

Optical Communications and Sensor Demonstration (OCSD)
- The Aerospace Corporation, El Segundo, CA

PhoneSat Series
- NASA Ames Research Center, Moffett Field, CA

SMALL BUSINESS INNOVATIVE RESEARCH PROGRAM - 2014 AWARDEES

1U Cubesat Lasercom Terminal for Deep Space Communication
- Fibertek, Inc., Herndon, VA

Cubesat Ambipolar Thruster for LEO and Deep Space Missions
- Aether Industries, LLC, Ann Arbor, MI

Deep Space Cubesat Gamma-ray Navigation Technology Demonstration
- ASTER Labs, Inc., Shoreview, MN

Deep Space Cubesat Regenerative Ranging Transponder (DeSCReeT)
- Innoflight Inc., San Diego, CA

Deployable Solar Energy Generators for Deep Space Cubesats
- Nanohmics, Inc., Austin, TX

High Power Betavoltaic Technology
- MicroLink Devices, Inc., Niles, IL

LunarCube for Deep Space Missions
- Busek Company, Inc., Natick, MA

Multi-Purpose Interplanetary Deployable

Aerocapture System (MIDAS)
- Altius Space Machines, Inc., Louisville, CO

Solar Electric Propulsion Cubesat Bus for Deep Space Missions
- ExoTerra Resource, LLC, Lone Tree, CO

SMALLSAT TECHNOLOGY PARTNERSHIPS

Advanced Manufacturing

Printing the Complete Cubesat
- University Of New Mexico
- Partners: University of Texas - El Paso and Drake State Technical College
- NASA Partner: Glenn Research Center

Communications

Development of Novel Integrated Antennas for Cubesats
- University Of Houston
- NASA Partner: Johnson Space Center

High Rate Cubesat X-band/S-band Communication System
- University Of Colorado
- NASA Partners: Goddard Space Flight Center, Marshall Space Flight Center

Space Optical Communications Using Laser Beam Amplification
- University Of Rochester
- NASA Partner: Ames Research Center

Guidance, Navigation and Control

An Integrated Precision Attitude Determination and Control System
- University Of Florida
- NASA Partner: Langley Research Center

Cubesat Autonomous Rendezvous & Docking Software
- University Of Texas
- NASA Partner: Johnson Space Center

Radiation Tolerant, FPGA-based Smallsat Computer System
- Montana State University
- NASA Partners: Goddard Space Flight Center, Marshall Space Flight Center

Smallsat Precision Navigation With Low-Cost MEMS IMU Swarms
- West Virginia University
- Partner: Marquette University
- NASA Partner: Johnson Space Center

Power

Smallsat Low Mass, Extreme Low Temperature Energy Storage
- California State University - Northridge
- NASA Partner: Jet Propulsion Lab

Propulsion

Film-Evaporation MEMS Tunable Array for Picosat Propulsion and Thermal Control
- Purdue University
- NASA Partner: Goddard Space Flight Center

Propulsion System and Orbit Maneuver Integration in Cubesats
- Western Michigan University
- NASA Partner: Jet Propulsion Lab

Science Instrument Capabilities

Compressive Sensing for Advanced Imaging and Navigation
- Texas A&M University
- NASA Partner: Langley Research Center

Mini Fourier-Transform Spectrometer for Cubesat-Based Remote Sensing
- Appalachian State University
- Partner: University of Maryland - Baltimore County
- NASA Partner: Goddard Space Flight Center

For more information about the SSTP, visit:
http://www.nasa.gov/smallsats

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